Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Exploring short-range correlation effects with quantum Monte Carlo[1] DIEGO LONARDONI, FRIB-MSU and LANL — Quantum Monte Carlo (QMC) techniques provide a versatile and systematic approach to nuclear systems. Recent advances allow to perform calculations from light to medium-mass nuclei for a variety of nuclear Hamiltonians, including those constructed using phenomenological potentials and local interactions derived from chiral effective field theory. The fully correlated nature of the many-body wave functions employed in QMC methods allows us to properly asses the short-distance and high-momentum behavior of calculated nuclear properties. In this talk, I will present QMC results for nuclei from ^{3}H to ^{40}Ca, enabling us to explore short-range correlation effects and connect to the experimental information extracted from electron scattering.

[1]This work is supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under the FRIB Theory Alliance Grant Contract No. DE-SC0013617, and under the NUCLEI SciDAC grant. Computational resources have been provided by Los Alamos Open Supercomputing via the Institutional Computing (IC) program, and by the National Energy Research Scientific Computing Center (NERSC), which is supported by the U.S. Department of Energy, Office of Science, under Contract No. DE-AC02-05CH11231.

Diego Lonardoni
FRIB-MSU and LANL

Date submitted: 03 Jul 2019 Electronic form version 1.4